

- |   |                                  |
|---|----------------------------------|
| 3. Pileus gray.                                       | <i>C. apiculatus</i> Pk.         |
| Pileus reddish.                                       | <i>C. ephemerus</i> Fr.          |
| Pileus yellowish-brown, darker with age.              | 4.                               |
| 4. Pileus small, 1-1½ cm. broad; lamellae subdistant. | <i>C. aquatilis</i> Pk.          |
| Pileus larger, 3-5 cm. broad; lamellae crowded.       | <i>C. Berkeleyi</i> Mont.        |
| 5. Pileus with brownish scurf.                        | <i>C. Wrightii</i> B. & C.       |
| Pileus with grayish scurf.                            | <i>C. radiatus</i> Fr.           |
| 6. Lamellae attached to the stipe.                    | 7.                               |
| Lamellae free, not reaching the stipe.                | <i>C. plicatilis</i> (Curt.) Fr. |
| 7. Growing from a sclerotium.                         | <i>C. sclerotigenus</i> E. & E.  |
| Not from a sclerotium.                                | 8.                               |
| 8. Lamellae subdistant.                               | <i>C. siovaticus</i> Pk.         |
| Lamellae crowded.                                     | <i>C. angulatus</i> Pk.          |

NEW YORK BOTANICAL GARDEN.

## HANDLING HERBARIUM SPECIMENS IN CLASSES

BY FRANCIS E. LLOYD

Teachers who make use of herbarium material of any kind for demonstration in classes, especially if the number of students is large, have experienced considerable discomfort incident to the danger of damage to the specimens by rough handling. But as many of us know, with even careful handling, the danger is still great, and any method of avoiding the danger at small cost will be welcomed.

Heretofore, glazed frames of various forms have been used to some extent, and these have generally a fair degree of efficiency. The only serious objection has been their weight and costliness, and the danger of glass breakage is here, too, not slight. At any rate such frames have not come into general use. The objection may be avoided, however, by the use of sheets of transparent celluloid or xylonite instead of glass. These sheets may be used in two ways, as follows.

If it is desired to show ordinary herbarium specimens a pocket may be constructed large enough to engage an herbarium sheet of ordinary size. The pocket is made by taking a sheet of stiff cardboard and of xylonite of the same size. One edge of both xylonite and cardboard should be bound with photographers' or

picture-framers' binding strips, and the sheets then laid together and bound around the other three edges. If it is desired, the xylonite and cardboard may be separated by narrow strips of Bristol-board of appropriate thickness. Such an apparatus is somewhat pliable, very durable, light and highly protective to the specimen temporarily placed therein.

Specimens to show points of morphological interest may be mounted directly on cards of any desired size, labelled according to wish, then covered with xylonite and bound with paper strips. I have found  $6\frac{1}{2}'' \times 8\frac{1}{2}''$  photographers' mounting cards very useful and a good convenient size. Specimens showing adaptations of various kinds, of smaller plants such as mosses, liverworts, lichens and the like, may be thus mounted at small cost in a quantity of duplicates. These may then be used repeatedly, effecting an immense saving of time and energy to the teacher who has now always at hand plenty of the choicest material, if a little effort is once made to collect the best specimens available and to mount them properly. Pressing and drying is made quick and easy by the method devised by Rostowzew, and recently described by Richards.\*

Such preparations will stand an enormous amount of wear and tear; are, in fact, practically indestructible. It is wise to fasten the specimens well on the cards, strips being used if necessary. To an ingenious teacher this method of handling specimens will be susceptible of many useful modifications. Xylonite may be obtained from dealers in general laboratory supplies and probably from dealers in photographic materials.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY.

\* TORREYA, I: 145. D. 1901.